

*Curriculum Vitae*  
**JOSEPH HERAS, Ph.D.**  
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APPOINTMENTS

- [08/2020-Present]      **Assistant Professor, California State University, San Bernardino**  
Department of Biology
- [01/2020-08/2020]      **Postdoctoral Scholar, University of California, Berkeley**  
Department of Integrative Biology and the Museum of Vertebrate Zoology
- [08/2018-05/2019]      **Lecturer, California State University, Los Angeles**  
Department of Biological Sciences
- [04/2015-07/2018]      **Postdoctoral Scholar, University of California, Irvine**  
Department of Ecology and Evolutionary Biology
- [01/2015-03/2015]      **Lecturer, California State University, Los Angeles**  
Department of Biological Sciences

EDUCATION

- 2014    **Ph.D. - Quantitative and Systems Biology**      **University of California, Merced**  
Dissertation advisors: Drs. Andres Aguilar and Miriam Barlow  
Dissertation: Adaptive molecular evolution within a highly diverse group of fishes, rockfishes (*Sebastes*)
- 2007    **M.S. - Biology**      **California State University, Los Angeles**  
Thesis advisor: Dr. Elizabeth Torres  
Thesis: Examination of *Skogsbergia lernerii* (Ostracoda: Myodocopida: Cypridinidae) from Belize: the use of molecular and morphological tools to distinguish cryptic species
- 2005    **B.S. - Biology**      **University of California, Riverside**  
Research advisor: Dr. James Baldwin  
Project: Developing online taxonomic keys for identifying marine nematodes from the Gulf of California

PUBLICATIONS

15.    Le, N., **Heras, J.**, Herrera, M. J., German, D. P., Crummett, L. T. (2023). The genome of *Anoplarchus purpureus* (Stichaeidae) reflects its carnivorous diet. *Molecular Genetics and Genomics*. 1-16.
14.    Rankins, D. R. D., Herrera, M. J., Christansen, M. P., Chen, A., Hood, N. Z., **Heras, J.**, German, D. P. (2023). When digestive physiology doesn't match "diet": *Lumpenus sagitta* (Stichaeidae) is an "omnivore" with a carnivorous gut. *Comparative Biochemistry and Physiology Part A: Molecular and Integrative Physiology*. 111508.

13. **Heras, J., & Martin, C. H. (2022).** Minimal overall divergence of the gut microbiome in an adaptive radiation of Cyprinodon pupfishes despite potential adaptive enrichment for scale-eating. *Plos one*, 17(9), e0273177.
12. Mancilla-Morales, M. D., Velarde, E., Contreras-Rodríguez, A., Gómez-Lunar, Z., Rosas-Rodríguez, J. A., **Heras, J., ... & Ruiz, E. A. (2022).** Characterization, Selection, and Trans-Species Polymorphism in the MHC Class II of Heermann's Gull (Charadriiformes). *Genes*, 13(5), 917.
11. Herrera, M. J., **Heras, J., & German, D. P. (2022).** Comparative transcriptomics reveal tissue level specialization towards diet in prickleback fishes. *Journal of Comparative Physiology B*, 192(2), 275-295.
10. Frederick, A. R., **Heras, J., Friedman, C. S., & German, D. P. (2022).** Withering syndrome induced gene expression changes and a de-novo transcriptome for the Pinto abalone, *Haliotis kamtschatkana*. *Comparative Biochemistry and Physiology Part D: Genomics and Proteomics*, 100930.
9. **Heras, J. (2021).** Fish transcriptomics: applied to our understanding of aquaculture. In *Transcriptomics from Aquatic Organisms to Humans* (pp. 71-90). CRC Press.
8. **Heras, J., Chakraborty, M., Emerson, J.J., and German, D.P. (2020)** Genomic and biochemical evidence of dietary adaptation in a marine herbivorous fish. *Proceedings of the Royal Society B*, 287: 20192327.
7. **Heras, J., and Aguilar, A. (2019)** Comparative transcriptomics reveals patterns of adaptive evolution associated with depth and age within marine rockfishes (*Sebastes*). *Journal of Heredity*, 110(3):340-350.
6. German, D.P., Foti, D.M., **Heras, J., Amerkhanian, H., Lockwood, B.L. (2016)** Elevated gene copy number does not always explain elevated amylase activities in fishes. *Physiological and Biochemical Zoology*, 89(4):277-293.
5. Regan, M.D., Turko, A., **Heras, J., Andersen, M.K., Lefevre, S., Wang, T., Bayley, M., Brauner, C., Huong, D.T.T., Phuong, N.T., Nilsson, G.E. (2016)** Ambient CO<sub>2</sub>, fish behaviour and altered GABAergic neurotransmission: exploring the mechanism of CO<sub>2</sub>-altered behaviour by taking a hypercapnia dweller down to low CO<sub>2</sub> levels. *Journal of Experimental Biology*, 219:109-118.
4. **Heras, J., McClintock, K., Sunagawa, S., Aguilar, A. (2015)** Gonadal transcriptomics elucidate patterns of adaptive evolution within marine rockfishes (*Sebastes*). *BMC Genomics*, 16:656.
3. **Heras, J., Koop, B. F., Aguilar, A. (2011)** A transcriptomic scan for positively selected genes in two closely related marine fishes: *Sebastes caurinus* and *S. rastrelliger*. *Marine Genomics*, 4(2):93-98.
2. Baumsteiger, J., Swift, H. F., Lehman, J. M., **Heras, J., and Gomez-Daglio, L. (2010)** Getting to the root of phylogenetics. *Frontiers of Biogeography*, 2(3):68-69.
1. De Ley, P., De Ley, I. T., Morris, K., Abebe, E., Mundo, M., **Heras, J., Waumann D., Olivares, A. R., Burr, J., Baldwin, J. G., and Kelly, W. K. (2005)** An integrated approach to fast and informative morphological vouchering of nematodes for application in molecular barcoding. *Philosophical Transactions of the Royal Society B*, 360:1945-1958.

## TEACHING EXPERIENCE

2020-Present

### **Assistant Professor**

Department of Biology, California State University, San Bernardino

Description: Instructor for Biol 3700 (Evolution), Bio 5720 (Population Genetics), Bio 3950 (Marine Biology), and Bio 4902 (Ichthyology).

2018-2019

### **Lecturer**

Department of Biological Sciences, California State University, Los Angeles

Description: Co-instructor for Biol 3800 (Ecology and Evolution). I teach lectures and develop exams for the ecology portion of this course. In addition, I am the instructor for the lab portion of Biol 1100 (Principles of Biology), in which I facilitate laboratory exercises in general biology topics.

2018

### **Lecturer**

Department of Ecology and Evolutionary Biology University of California, Irvine

Description: Co-instructor for Biol E112L (Physiology Lab) held during Summer Sessions. I created half of the exams for the course and lectured half of the topics in physiology, and instructed the laboratory exercises with the students.

2017, 2019

### **Instructor**

Workshop sponsored by the Postgraduate Studies in Ocean Sciences and Limnology, Universidad Nacional Autónoma de México, México City, México (2017). Workshop sponsored by the Instituto de Biología, Universidad Nacional Autónoma de México (2019).

Description: Co-instructor for a one week workshop series entitled “Genomics and Transcriptomics in Non-model organisms.” I developed lectures and exercises for researchers to better understand GNU/Linux, basic command line tools, and mapping reads back to a genome/transcriptome with bioinformatics programs. This was a five full-day workshop series offered to graduate students and postdoctoral scholars. The course was taught in English and Spanish.

2015

### **Lecturer**

Department of Biological Sciences California State University, Los Angeles

Description: Instructor for Biol 350 (Evolution) and the lab instructor for Biol 340 (Genetics). As an instructor for Biol 350, my responsibilities included developing lectures, exams, and assignments for an undergraduate upper division course. For Biol 340, my responsibilities include preparing laboratory exercises for students that include crosses of *Drosophila melanogaster* and molecular technique exercises that include: DNA extractions, PCR/RT-PCR, and gel electrophoresis.

2008-2014

### **Teaching Fellow**

School of Natural Sciences, University of California, Merced

Description: Assisted with the following courses: Biology Today, Contemporary Biology, Evolution, Genetics, and Introduction to Molecular Biology. Teaching assistant duties include attending lectures, developing quizzes, leading discussion and laboratory exercises, grading exams and laboratory reports, and hosting review sessions.

2012-2014

**Instructional Intern**

Center for Research on Teaching Excellence

Description: Attending workshops on how to improve teaching strategies and pedagogy. I have facilitated workshops on how to prepare for the first day of instruction, how to assess student performance, and how to assist students with thinking within their disciplines. As part of my internship, I was selected to participate in a novel program called the Undergraduate Learning Outcomes Assessment – Pedagogy and Program Planning. This program was designed to assess progress within introductory science courses at the University of California, Merced.

FELLOWSHIPS, GRANTS, AND SCHOLARSHIPS (TOTAL: **\$117,830**)

2023-COAST grant for undergraduate research support, **\$1,382**

2022- Mini Grant at California State University, San Bernardino (CSUSB) for Gut Microbiome research, **\$6,100**

2022-COAST grant for undergraduate research support, **\$2,500**

2022-Instructionally Related Activities Board Teaching Grant (AY: 2022-2023), **\$7,600**

2021-Instructionally Related Activities Board Teaching Grant (AY: 2021-2022), **\$8,700**

2021-Friday Harbor Laboratories New Faculty Research Fellowship, **\$2,582**

2020-COAST grant for undergraduate research support, **\$2,500**

2017-Postdoctoral Small Grant, UC MEXUS, **\$1,500**

2014-Quantitative and Systems Biology Dissertation Fellowship, University of California, Merced, **\$14,916**

2012-Graduate and Research Council Fellowship, University of California, Merced, **\$6,000**

2012-Quantitative and Systems Biology Research Award, University of California, Merced, **\$850**

2011-University Student Aid Program (USAP) Summer Fellowship, University of California, Merced, **\$7,500**

2008-Faculty Mentor Fellowship, University of California, Merced, **\$20,700 for 1 academic year**

2005-Fellowship, Minority Biomedical Research Support-Research Initiative for Scientific Enhancement (MBRS-RISE) M.S. to Ph.D., **\$32,000 over 2 years**

2005-CEA-CREST Summer Research Experience Program Fellowship, California State University, Los Angeles, **\$3,000 for 10 weeks**

TRAVEL GRANTS (TOTAL: **\$6,025**)

2018-Travel Grant, Society Integrative and Comparative Biology (SICB), **\$500**

2016-Travel Grant, Society for Advancement of Chicanos and Native, **\$450**

2015-Travel Grant, University of Pennsylvania program in Single Cell Biology workshop on Single Cell Transcriptomics, **\$500**

2014-Travel Scholarship to Can Tho, Vietnam, American Physiological Society, **\$750**

Description: This was a 12-day course (December 1<sup>st</sup> - December 12<sup>th</sup>, 2014) on the physiology of native fishes in Vietnam, and the impacts of environmental conditions on the adaptive traits of these fishes which resulted in a publication - **Regan et al., 2016**

2013-Graduate Fellowship, American Association of Hispanics in Higher Education (AAHHE), Conference accommodations and travel were paid, held in San Antonio, Texas.

2012-Ecological Genomics Symposium Travel Grant, National Science Foundation, **\$400**

2011-Tuition Scholarship, Summer Institute of Statistical Genetics (SIGS), University of Washington, **\$1,600 for tuition, \$800 for room and board**

2010-Graduate and Research Council Conference Fellowship, University of California, Merced, **\$1,025**

#### OUTREACH AND COMMUNITY ACTIVITIES

2023-Speaker for the DiverseScholar Postdoctoral Conference

**Irvine, CA**

Description: I served on a panel to describe my experiences as an assistant professor at a California State University

2023-Faculty Mentor for the Society for Chicanos and Native Americans in Sciences (SACNAS) chapter

**San Bernardino, CA**

Description: Founding faculty member of the SACNAS chapter at CSUSB, which was established in 2022. The chapter is developing outreach projects and prepared for the national SACNAS NDiSTEM conference which was held in Portland Oregon, October, 2023.

2023-Louis Stokes Alliance Minority Program - Summer Problem-Solving Program 2023

**San Bernardino, CA**

Description: Presented a workshop on various topics which included personal experiences, how to write a curriculum vitae, and how to apply to graduate school (two hour presentations over three days).

2022-Co-coordinator for the Southwestern Organismal Biology (Regional SICB) Meeting held at the California State University, San Bernardino

**San Bernardino, CA**

Description: Co-coordinator with six other CSUSB faculty organizing this meeting for about 120 participants. This included writing a grant (Intellectual Life Fund; awarded \$2,000), organizing the speaker itinerary, room reservations, and serving as a co-moderator throughout the meeting.

2022-Mentor for the Friday Harbor Laboratories BLINKS-REU Program

**Friday Harbor, WA**

Description: I served as a research mentor for an eight week undergraduate research program.

2022-CSUSB - Louis Stokes Alliance for Minority Participation Summer Program

**San Bernardino, CA**

Description: My personal experiences and challenges throughout my academic career.

2022-University of California, Irvine - Career Panel

**Online**

Description: A Q&A about my experiences and challenges throughout my academic career.

2021-University of California, Berkeley - Career Panel

**Online**

Description: A Q&A about my experiences and challenges throughout my academic career.

2020-SACNAS@UCI presentation

**Online**

Description: My personal experiences and challenges throughout my academic career.

2018-Minority Opportunities in REsearch (MORE) program Research Retreat

**Lake Arrowhead, CA**

Description: Answered questions about my personal experiences as a postdoctoral scholar and gave advice on how to apply to postdoctoral positions.

2018, 2016-Society for Integrative and Comparative Biology Symposium Mentorship Program

**San Francisco, CA and Portland, OR**

Description: A one-to-one mentorship program to introduce undergraduate students from Native American backgrounds to the layout of a conference.

2017-Society for Advancement of Chicanos and Native Americans in Sciences (SACNAS) co-advisor for the University of California, Irvine Chapter

**Irvine, CA**

Description: One of the founding members which helped reestablish a SACNAS chapter at UCI. I have contributed to organizing meetings and working with graduate students to develop events for this new chapter.

2016-2018-California State Science Fair

**Los Angeles, CA**

Description: Judged the junior division in product science (Biological-2016), zoology (Biological-2017 & 2018) poster presentations and delegated with a committee on the top presentations.

2016-Society for Advancement of Chicanos and Native Americans in Sciences (SACNAS) Mentorship Program

**Long Beach, CA**

Description: Provided feedback on undergraduate and graduate abstract submissions and also poster presentations in the field of biological sciences.

2015-Present-Targeted Instruction Generating Excitement about Research and Science (TIGERS)

**Placentia, CA**

Description: Provided demonstrations of topics in biology to Valencia High School students, which includes short lectures, activities, and answering questions about the college experience and academic careers.

2014-From Quanta to Quasars at the Boys and Girls Club

**Merced, CA**

Description: Developed a curriculum and present for children at the Boys and Girls club in Merced, CA. The lessons were about human anatomy and physiology.

2011-Participated on Two Panels - 1st at the Diversity Forum at the University of San Francisco (USF) – Date: Oct 29<sup>th</sup> 2011 / 2<sup>nd</sup> at University of California, Merced (Alliance for Graduate Education and the Professoriate – AGEP / University of California Leadership Excellence through Advanced DegreeS – UC LEADS programs) – Date: June 15<sup>th</sup> 2011.

**San Francisco, CA and Merced, CA**

Description: Answered questions about my personal experiences as a graduate student and gave advice on how to survive graduate school.

2009-Head Coordinator for the Quantitative and Systems Biology (QSB) Fall Retreat

**Merced, CA**

Description: As the coordinator, I organized a team of QSB graduate students to request speakers from each laboratory group, request funds, and organize the itinerary for this event.

2007-Facilitator for the University Preparatory Program at California State University, Los Angeles

**Los Angeles, CA**

Description: Prepared an introductory college laboratory exercise for local high school students in order for them to become familiar with college coursework.

2007-Event captain and proctor for the Los Angeles Regional Science Olympiad for grades 6th through 9th.

**Los Angeles, CA**

Description: Developed an exam in the field of ecology, which was administered to middle school students. The exams were graded and school teams were ranked in order to determine placement in the competition.

## ABSTRACTS AND PRESENTATIONS - TALKS

2023

Western Society of Naturalist (WSN) meetings held in Monterey, California

Society for Integrative and Comparative Biology (SICB) meetings held in Austin, Texas

2021

Western Society of Naturalist (WSN) meetings held online

Southwestern Organismal Biology (Regional SICB) Meeting held at Chapman University, California

Southern California Academy of Sciences held online

2020

Joint Berkeley Initiative for Microbiome Sciences - Model Systems Workshop (Online)

- California Academy of Sciences Genomic Social Hour (June; Online)
- California Academy of Sciences Genomic Social Hour (May; Online)
- Museum of Vertebrate Zoology Symposium held at the University of California, Berkeley
- 2018
- Southern California Academy of Sciences meetings held at the California State Polytechnic University, Pomona
- Society for Integrative and Comparative Biology (SICB) meetings held in San Francisco, California
- 2017
- Southwestern Organismal Biology (Regional SICB) Meeting held at the Claremont Colleges, California
- Society for Integrative and Comparative Biology meetings held in New Orleans, Louisiana
- 2016
- Southwestern Organismal Biology (Regional SICB) Meeting held at the California State University, Fullerton
- Society for Advancement of Chicanos and Native Americans in Sciences held in Long Beach, California
- University of California, Irvine Postdoctoral Scholar Research Symposium
- Southern California Academy of Sciences meetings held at University of Southern California, Los Angeles
- Society for Integrative and Comparative Biology meetings held in Portland, Oregon
- 2015
- Western Society of Naturalists meetings held in Sacramento, California
- Southwestern Organismal Biology (Regional SICB) Meeting held at California State Polytechnic University, Pomona
- 2012
- Western Society of Naturalists meetings held in Seaside, California
- 2010
- Western Society of Naturalists meetings held in San Diego, California
- 2006
- Center of Environmental Analysis - Centers for Research Excellence in Science and Technology annual conference held at California State University, Los Angeles

#### ABSTRACTS AND PRESENTATIONS - POSTER PRESENTATIONS

- 2016
- Society for Integrative and Comparative Biology meetings held in Portland, Oregon
- 2013
- Evolution meetings held in Snowbird, Utah

- 2012 Ecological Genomics Symposia held in Kansas City, Missouri
- 2010 Evolution meetings held in Moscow, Idaho
- 2006 Society for Advancement of Chicanos and Native Americans in Sciences held in Tampa, Florida

#### INVITED TALKS AND SEMINARS

- 2023 Department of Biology Seminar Series at Occidental College, Los Angeles, CA
- 2022 Department of Biological Sciences Seminar Series at California State Polytechnic University, Pomona, CA
- University of Washington - Functional Morphology and Ecology of Marine Fishes Course held at Friday Harbor Laboratories in Friday Harbor, WA
- 2021 Department of Biological Sciences Seminar Series at Chico State University, CA (Online)
- Department of Biology Seminar Series at Appalachian State University, NC (Online)
- Department of Evolution, Ecology, and Organismal Biology Seminar Series at University of California, Riverside, CA (Online)
- Friday Harbor Laboratories Seminar Series at the University of Washington, WA (Online)
- 2020 Museum of Vertebrate Zoology Lunch Seminar, University of California, Berkeley, CA
- Department of Biology Seminar Series at California State University, San Bernardino, CA
- 2019 Instituto de Biología Seminar Series, Universidad Nacional Autónoma de México, México City, México
- 2018 Centro de Investigación Científica y de Educación Superior de Ensenada, CICESE, Ensenada, México
- Harvey Mudd College Biology Colloquium, Claremont, CA
- 2017 Department of Biological Sciences Seminar Series at San Jose State University, CA
- Departamento de Zoología Seminar Series at Instituto Politécnico Nacional, México City, México
- Department of Biological Sciences Seminar Series at California State University, Long Beach, CA

University of California, Irvine at Fireside Tavern, Costa Mesa, CA

Department of Biology Seminar Series at Occidental College, Los Angeles, CA

Wake Forest University - Bio 312: Ecology and Conservation of Coral Reefs held at Long Caye, Belize

Department of Biological Science Seminar Series at California State University, Fullerton, CA

2016

Department of Biological Sciences Seminar Series at California State University, Los Angeles, CA

2015

Group for Comparative and Evolutionary Physiology at University of California, Irvine, CA

## AFFILIATIONS

Current	Western Society of Naturalists
Current	Society for Advancement of Chicanos and Native Americans in Science
2019-2020	Integrative Organismal Biology Journal (Outreach Associate)
2018	Southern California Academy of Sciences
2015-2018, 2023	Society for Integrative and Comparative Biology
2015-2016	Postdoctoral Association at the University of California, Irvine
2013	American Association of Hispanics in Higher Education

## PEER REVIEW

Graduate Women in Science Fellowship  
Integrative and Comparative Biology  
International Aquatic Research  
International Journal of Molecular Sciences  
Marine Biodiversity  
Molecular Biology and Evolution  
PLOS ONE  
Revista Mexicana de Biodiversidad

## MEDIA COVERAGE

What rockfish genes can teach humans about living past 100, Popular Science, **January 2023**. - <https://www.popsci.com/science/rockfish-genes-human-longevity/>

Monkeyface prickleback: what a vegetarian fish can teach us about sustainable eating, The Guardian, **February 2020**. - <https://www.theguardian.com/food/shortcuts/2020/feb/24/monkeyface-prickleback-vegetarian-fish-sustainable-eating>

El 'pez picudo cara de mono' que puede convertirse en un alimento sostenible para los humanos. Univision, **February 2020**. - <https://www.univision.com/noticias/ciencia/el-pez-picudo-cara-de-mono-que-puede-convertirse-en-un-alimento-sostenible-para-los-humanos>

Veggie-loving monkeyface pricklypear may be future sustainable protein. UPI Science News, **February 2020**. - [https://www.upi.com/Science\\_News/2020/02/19/Veggie-loving-monkeyface-pricklypear-maybe-future-sustainable-protein/3801582139617](https://www.upi.com/Science_News/2020/02/19/Veggie-loving-monkeyface-pricklypear-maybe-future-sustainable-protein/3801582139617)